

ABSTRACT

The advancement in field of portable devices with substitutive sources of energy has lead researchers to develop electrochemical devices to store energy i.e. supercapacitor. Most of the work recently published is based upon the electrode material, but some of work is focused toward increase in energy storage capacity by employing materials such as metal-oxides and electroactive polymers. Moreover the use of carbon based material increase the stability, mechanical strength, thermal properties, life cycle, surface area and storage density. The use of metal oxides lead to decrease in cost of device. The main aim of this research is to increase the energy density by synthesizing nanocomposite of graphene oxide, Conductive polymer and metal oxides. The research is mainly focused on two phases; (i) the synthesis of composite material and its characterization (ii) the fabrication of material on electrode and electrochemical study. The whole system is designed to prepapre a super capacitor material that is flexible, could store high energy density and has reduced unit cost. As iron is magnetic in nature and cost effective that is why iron nanocomposite has been utilized.